

Appl. No. : 09/945,026
Filed : August 31, 2001

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-25 (Canceled).

26. **(Previously Amended)** An exercising apparatus operable to permit exercising by an operator selectively through a range of exercising movements during substantially continuous exercising, the apparatus comprising:

a frame having a contact surface defining an operator's station adapted to receive an operator in a supine attitude with the operator's upper body adjacent to a first end thereof and the operator's lower body adjacent to an opposite second end thereof;

a track mounted on the frame adjacent to said first end thereof defining a first path of travel substantially aligned with and offset relative to the first end of the operator's station;

a carriage supported by the track for movement along the first path of travel;

a drive mechanism coupled to the carriage to move the carriage along the first path of travel;

a pair of arms mounted on the carriage for individual substantially pivotal movement about a pivot axis that extends substantially normal to the first path of travel;

a pneumatic system that is operably connected to at least the arms of said pair of arms so as to selectively resist said individual substantially pivotal movement of the arms about said pivot axis for purposes of exercising the upper body of the operator through a range of exercising movements; and

a pair of control members mounted on at least one of the arms of said pair of arms, one of which is operable to operate the drive mechanism to move said carriage to a selected position along the first path of travel and the other of which is operable selectively to increase or alternatively to decrease the amount of resistance applied to resist said individual substantially pivotal movement of the arms of said pair of arms whereby the operator can individually selectively control the amount of resistance to said exercising and said range of exercising movements.

27. **(Currently Amended)** The apparatus of Claim 26, wherein said track is arcuate and is mounted on the frame beneath said ~~upper~~ first end of the operator's station.

28. **(Currently Amended)** The apparatus of Claim 26, including a pair of leg members mounted on said frame adjacent to said second end ~~portion~~ for individual substantially pivotal movement about a pivot axis substantially normal to a longitudinal axis of the operator's station.

29. **(Previously Amended)** The apparatus of Claim 28, wherein said pneumatic system is individually operably connected to the leg members of said pair of leg members to resist said individual substantially pivotal movement of the leg members about said pivot axis for purposes of exercising the lower body of the operator.

30. **(Original)** The apparatus of Claim 29, including a second pair of control members mounted on at least one of the arms of said pair of arms which are individually operable selectively to increase, or alternatively to decrease, the amount of resistance applied to resist said individual substantially pivotal movement of the leg members of said pair of leg members whereby the operator can individually selectively control the amount of resistance to said exercising applied to the leg members.

31. **(Previously Amended)** The apparatus of Claim 30, including at least one restraint borne by said frame for attachment to an operator received in said operator's station.

32. **(Original)** The apparatus of Claim 30, wherein the arms of said pair of arms and the leg members of said pair of leg members are individually moveable relative to said frame from retracted positions substantially overlaying said operator's station to extended positions constituting the respective termini of individual paths of pivotal movement of the arms of said pair of arms about the pivot axis thereof and of individual paths of pivotal movement of the leg members of said pair of leg members about the pivot axis thereof whereby said arms of said pair of arms can be disposed in their respective retracted positions and the leg members of said pair of leg members disposed in their respective retracted positions so as to dispose said apparatus in a compact configuration suitable for storage.

33. **(Previously Amended)** The apparatus of Claim 32, including an electrical system connected in information receiving relation to said pneumatic system

and an electrical display assembly deployed for observation and wherein said display assembly is operable to display indicia conveying said information received by the electrical system.

34. (Canceled)

35. **(Previously Amended)** The apparatus of Claim 33, wherein said electrical display assembly is mounted on a support arm that is borne by said frame, and is adapted to be deployed in an operational position that is viewable from supine attitude in the operator's.

36. **(Previously Amended)** The apparatus of Claim 35, wherein said support arm, on which the display assembly is mounted, is mounted on the frame for substantially pivotal movement from the operational position to a retracted position overlaying said operator's station in a compact configuration suitable for storage.

37. (Original) The apparatus of Claim 35, wherein said electrical display assembly includes a display screen visible to the operator in said operational position and including a screen operable graphically to display said indicia in substantially discrete display areas, a first of which is substantially centrally disposed on the display screen and a second of which is substantially peripherally disposed relative to the first display area.

38. **(Previously Amended)** The apparatus of Claim 37, wherein said first display area is adapted to display indicia revealing said operator's performance as determined by the pneumatic system and the electrical system, and wherein said second display area is adapted to display indicia providing instructions for operation of the apparatus.

39. **(Previously Amended)** The apparatus of Claim 38, wherein said second display area displays indicia providing instructions for the operation of said first and second pairs of control members.

40. **(Previously Amended)** The apparatus of Claim 39, wherein said first display area has at least two modes of operation, one of which displays indicia relating to the strength force applied in the operation of said arms of said pair of arms and the other of which displays indicia relating cardiovascular performance.

41. **(Previously Amended)** The apparatus of Claim 39, wherein said first display area has at least two modes of operation, one of which displays indicia relating to

the strength applied in the operation of said leg members of said pair of leg members and the other of which displays indicia relating to cardiovascular performance.

42. (Original) The apparatus of Claim 40 or 41, wherein said second display area displays indicia instructing said operator on how to change the indicia displayed in the first display area between said first and second modes of operation.

43. (Previously Amended) The apparatus of Claim 32, wherein the arms of said pair of arms and the leg members of said pair of leg members at said respective termini of the individual paths of pivotal movement define a distance therebetween approximating the length of an average adult human body in the supine attitude.

44. (Previously Amended) The apparatus of Claim 43, wherein the length of said apparatus in the compact configuration is less than the length of said average adult human body in the supine attitude.

45. (Previously Amended) The apparatus of Claim 44, wherein the height of said apparatus in the compact configuration is less than four times the thickness of the operator's average adult human body in the supine attitude.

46. (Previously Amended) The apparatus of Claim 32, wherein the resistance applied by the pneumatic system to said individual substantially pivotal movement of the arms of said pair of arms and the leg members of said pair of leg members is within a range adapted substantially to duplicate corresponding pneumatic resistance applied in a magnitude of gravity equivalent to that on the surface of the planet Earth even though the apparatus is in an environment having a gravity different from that on the surface of the planet Earth.

47. (Currently Amended) An exercise apparatus comprising:

a stationary frame portion including an operator support having a first side configured to support at least a portion of a back of an operator and a generally opposite second side; and

an operator input assembly, comprising;

a moveable frame portion being moveable relative to the stationary frame portion ~~from~~ between at least a first position and a second position along an arcuate path that lies principally to the second side of the operator support;

a resistance assembly; and

an operator engagement portion being configured to move relative to both the moveable frame portion and the operator support;

wherein the resistance assembly is configured to provide resistance to the movement of the engagement portion in at least one direction.

48. **(Previously Presented)** The exercise apparatus of Claim 47, wherein the moveable frame portion is supported by an arcuate track assembly.

49. **(Previously Presented)** The exercise apparatus of Claim 48, wherein the arcuate track assembly comprises a first arcuate track member and a second arcuate track member, the first and second arcuate track members being positioned generally parallel to one another on opposite sides of the moveable frame portion.

50. **(Previously Presented)** The exercise apparatus of Claim 47, wherein the operator engagement portion is configured for pivotal movement relative to the moveable frame portion of the operator input assembly.

51. **(Previously Presented)** The exercise apparatus of Claim 47, wherein the resistance assembly is configured to provide resistance independent of gravitational forces.

52. **(Previously Presented)** The exercise apparatus of Claim 47, wherein the resistance assembly comprises a pneumatic cylinder assembly having a piston enclosed within a cylinder.

53. (Canceled)

54. **(Currently Amended)** ~~The exercise apparatus of Claim 47, additionally comprising~~ An exercise apparatus comprising:

a stationary frame portion including an operator support;

an operator input assembly, comprising:

a moveable frame portion being moveable relative to the stationary frame portion between at least a first position and a second position along an arcuate path;

a resistance assembly; and

an operator engagement portion being configured to move relative to both the moveable frame portion and the operator support; and

an operator input assembly positioning system comprising a threaded drive shaft secured to the stationary frame portion, a drive sleeve connected to the moveable frame portion and in driving engagement with the drive shaft, wherein rotation of the drive shaft moves the operator input assembly along the arcuate path;

wherein the resistance assembly is configured to provide resistance to the movement of the engagement portion in at least one direction.

55. **(Currently Amended)** The exercise apparatus of Claim 47, additionally comprising a motor configured to drive the drive shaft and a control assembly for controlling the motor.

56. **(Previously Presented)** The exercise apparatus of Claim 47 additionally comprising an operator input assembly position system including a motor powering a drive mechanism, the drive mechanism operating between the stationary frame and the movable frame to move the movable frame along the arcuate path.

57. **(Previously Presented)** The exercise apparatus of Claim 47, wherein, in the first position of the moveable frame, the operator engagement portion is moveable along a first exercise path relative to the operator support and, in the second position of the moveable frame, the operator engagement portion is moveable along a second exercise path, the second exercise path not being aligned with the first exercise path.

58. **(Previously Presented)** An exercise apparatus, comprising:

a frame assembly;

a resistance assembly supported relative to the frame assembly and having an input connection point, the input connection point being moveable along a resistance path, the resistance assembly being configured to provide resistance to movement of the input connection point in at least one direction along the resistance path;

an operator input arm being pivotally connected to the input connection point and pivotally connected to the frame assembly at a first pivot axis spaced from the input connection point;

a linkage assembly comprising a linkage member pivotally connected to the input connection point and defining a second pivot axis spaced from the input connection point, the linkage member being moveable such that the second pivot axis is capable of moving

from a first position substantially aligned with the first pivot axis to a second position spaced from the first pivot axis.

59. **(Previously Presented)** The exercise apparatus of Claim 58, additionally comprising a control assembly for moving the linkage member between the first position and the second position.

60. **(Previously Presented)** The exercise apparatus of Claim 59, wherein the control assembly comprises a pneumatic cylinder interconnected between the frame assembly and the linkage assembly.

61. **(Previously Presented)** The exercise apparatus of Claim 58, wherein the resistance assembly comprises a pneumatic device.

62. **(Previously Presented)** The exercise apparatus of Claim 58, wherein the linkage assembly comprises a second linkage member, a first end of the second linkage member being pivotally connected to the frame at a position spaced from the first pivot axis and a second end of the second linkage member being pivotally connected to the linkage member at the second pivot axis.

63. **(Previously Presented)** The exercise apparatus of Claim 58, additionally comprising a stationary frame, the frame assembly being supported for arcuate movement relative the stationary frame.

64. **(Previously Presented)** The exercise apparatus of Claim 58, wherein the operator input arm is connected to the input connection point through a linkage member.

65. **(Currently Amended)** An exercise apparatus, comprising:

an operator support supported by a frame, said operator support configured to receive an operator in an operator's station having a first reference position;

a track mounted to said frame next to said operator support, said track defining an arc substantially concentric to said first reference position; and

an engagement assembly including an operator engagement portion, and at least one pneumatic resistance device that opposes movement of the ~~engagement assembly~~ operator engagement portion during exercising, at least a portion of said engagement assembly being selectively moveable along said track relative to a said first reference position; ~~and a second reference point;~~

wherein the first reference position is disposed to a first side of the operator support, and at least a portion of the track is disposed to a generally opposing second side of the operator support.

66. (Currently Amended) The exercise apparatus of Claim 65, wherein the track defines at least first and second locations for said at least a portion of said engagement assembly relative to the first reference position, whereby positioning said at least a portion of said engagement assembly at said first location allows substantially parallel movement of said ~~engagement assembly~~ operator engagement portion relative to said operator support, and positioning said at least a portion of said engagement assembly at said second location allows substantially transverse movement of said ~~engagement assembly~~ operator engagement portion relative to said operator support.

67. (New) An exercise apparatus, comprising:

an operator support supported by a frame, said operator support having generally opposing first and second sides, the first side configured to support at least a portion of a torso of an operator;

a track mounted to said frame, the track being generally disposed to the second side of the operator support, and the track defining an arc substantially concentric to a first reference point disposed to the first side of the operator support; and

an engagement assembly having an operator engagement portion, at least a portion of said engagement assembly being selectively moveable along said track relative to the first reference position.

68. (New) The exercise apparatus of Claim 67, wherein the first side of the operator support is configured to support at least a portion of a back of the operator.

69. (New) The exercise apparatus of Claim 67, wherein the exercise apparatus further includes a resistance assembly.

70. (New) The exercise apparatus of Claim 69, wherein the resistance assembly is configured to provide resistance independent of gravitational forces.

71. (New) The exercise apparatus of Claim 69, wherein the resistance assembly comprises a pneumatic device.

72. (New) The exercise apparatus of Claim 67, wherein the first reference point is substantially coincident with shoulders of the operator.

73. (New) An exercise apparatus comprising:
a stationary frame portion including an operator support;
an operator input assembly, comprising:

a moveable frame portion being moveable relative to the stationary frame portion between at least a first position and a second position along an arcuate path;

an operator engagement portion being configured to move relative to both the moveable frame portion and the operator support; and

a resistance assembly being configured to provide resistance to the movement of the operator engagement portion in at least one direction; and

a motor coupled to the moveable frame portion so as to move the moveable frame portion along the arcuate path.

74. (New) The exercise apparatus of Claim 73, wherein the operator support is configured to support at least a portion of a back of an operator.

75. (New) The exercise apparatus of Claim 73, wherein the resistance assembly is configured to provide resistance independent of gravitational forces.

76. (New) The exercise apparatus of Claim 73, wherein the resistance assembly comprises a pneumatic device.

77. (New) The exercise apparatus of Claim 73, wherein the motor includes an electric rotor.

78. (New) The exercise apparatus of Claim 73, further comprising a drive mechanism coupled to the motor and to the moveable frame portion.

79. (New) The exercise apparatus of Claim 78, wherein the drive mechanism comprises a threaded drive shaft secured to the stationary frame portion.